UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,887	02/09/2006	Nathan Intrator	BRUN-003XX	2127

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EXAMINER
NGHIEM, MICHAEL P

ART UNIT	PAPER NUMBER
2863	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/567,887	INTRATOR ET AL.
	Examiner	Art Unit	
	Michael P. Nghiem	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>30 August 2007</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-66* is/are pending in the application.

    4a) Of the above claim(s) *53-66* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-9,12-22,25,27-35,38-48 and 51* is/are rejected.

7) ☒ Claim(s) *10,11,23,24,26,36,37,49,50 and 52* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>09 February 2006</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-SB/08)
    Paper No(s)/Mail Date <u>7-31-06, 2-9-06</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-52, in the reply filed on

August 30, 2007 is acknowledged.

Claims 53-66 are withdrawn from further consideration pursuant to 37 CFR

1.142(b) as being drawn to a nonelected Groups II and III, there being no allowable

generic or linking claim.

Specification

Applicant is reminded of the proper language and format for an abstract of the
disclosure.

The abstract should be in narrative form and generally limited to a single
paragraph on a separate sheet within the range of 50 to 150 words. It is important that
the abstract not exceed 150 words in length since the space provided for the abstract
on the computer tape used by the printer is limited. The form and legal phraseology
often used in patent claims, such as "means" and "said," should be avoided. The
abstract should describe the disclosure sufficiently to assist readers in deciding whether
there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information
given in the title. It should avoid using phrases which can be implied, such as, "The
disclosure concerns," "The disclosure defined by this invention," "The disclosure
describes," etc.

The abstract contains more than 150 words.

Claim Objections

Claims 5, 17, 31, and 43 are objected to because of the following informalities:

- claims 5, 17, 25, and 43, the time delay estimation system should relate back to the

time delay estimator.

- claims 31 and 43, "the system" lacks antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the
United States before the invention thereof by the applicant for patent, or on an international application
by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-9, 12, 14-22, 25, 27-35, 38, 40-48, and 51 are rejected under 35 U.S.C. 102(e)

as being anticipated by Szajnowski et al. (US 6,539,320).

Regarding claims 1, 14, and 27, Szajnowski et al. discloses a system and method (Figs.

5, 12, 14) for performing time delay estimation of signals propagating through an

environment (Figs. 5, 12, 14), comprising:

 - one or more sensors (7) configured to receive a plurality of signals (e.g. Fig. 5);

 - a time delay estimator (10) operative to measure time delays between multiple

pairs of the plurality of signals (column 4, lines 54-58; Fig. 4), thereby generating time

delay estimation data (60) from the measured time delays (e.g. output of 10, Fig. 5;

column 5, lines 13-49),

 - wherein at least some of the time delays between the multiple pairs of signals

are measured at different points in time (measured time delays for successive signals,

column 5, lines 30-33).

Regarding claims 2, 15, and 28, Szajnowski et al. discloses in the event a degree of

noise accompanies the multiple pairs of signals (column 1, lines 51-53), at least some

of the noise is non-correlated (noise in signal, column 9, lines 33-35, is inherently

chaotic).

Regarding claims 3, 16, and 29, Szajnowski et al. discloses a data analyzer (11)

operative to analyze the time delay estimation data, to generate a statistical distribution

of the time delay estimates from the time delay estimation data (Fig. 6), and to

calculate at least one of the mean, the median, and the mode of the time delay

estimation distribution (averaging technique, Fig. 6; Fig. 8; column 6, lines 16-18).

Regarding claims 4 and 30, Szajnowski et al. discloses the one or more sensors (7)

are configured to receive a plurality of successive signals including multiple pairs of

successive signals (7 receives successive signals, Fig. 5).

Regarding claims 5 and 31, Szajnowski et al. discloses a passive time delay estimation

system (7 receives successive signals).

Regarding claims 6, 19, and 32, Szajnowski et al. discloses the plurality of signals

propagate through a predetermined transmission medium within the environment, the

predetermined transmission medium being one of a fluid (medium is air, suggested

microwave oscillator 2).

Regarding claims 7, 20, and 33, Szajnowski et al. discloses the time delay estimator

includes a signal processor (processing means of 10) operative to perform one or more

preprocessing techniques on one or more of the plurality of signals to facilitate a

determination of the temporal location of the one or more signals (column 4, lines 54-

58).

Regarding claims 8, 21, and 34, Szajnowski et al. discloses the temporal location of the one or more signals corresponds to a prominent feature of the one or more signals, the prominent feature being one of a signal zero crossing (column 3, lines 1-6).

Regarding claims 9, 22, and 35, Szajnowski et al. discloses the preprocessing techniques include at least one of a first technique including determining an absolute value of at least one of the plurality of signals (peaks V0, -V0 are absolute values, Fig. 7).

Regarding claims 12, 25, and 38, Szajnowski et al. discloses the plurality of signals comprises one of electromagnetic signals (microwave signals, column 4, line 32).

Regarding claim 14, Szajnowski et al. further discloses a transmitter (1) configured to transmit multiple signals through the environment (column 4, lines 32-35), wherein the transmitted signals travel through the environment until they strike at least one object (6), thereby generating multiple signals reflected from the object (successive reflected signals, Fig. 5); each pair of signals comprising a respective reflected signal and a representation of a respective transmitted signal (column 3, lines 33-37), thereby generating time delay estimation data from the measured time delays (column 3, lines 33-37), wherein at least some of the time delays between the multiple pairs of signals are measured at different points in time (measuring delays of successive signals).

Regarding claim 17, Szajnowski et al. discloses an active time delay estimation system

(reflected/transmitted signal pair system, column 3, lines 33-37).

Regarding claim 18, Szajnowski et al. further discloses a sonar ping, and each

reflected signal comprises a sonar echo (column 1, lines 12-14; Fig. 5).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 12, 13, 27-35, 38, and 39 are rejected under 35 U.S.C. 102(b) as being

anticipated by Brandstein et al. (US 5,581,620).

Regarding claims 1 and 27, Brandstein et al. discloses a system and method (Fig. 1) for

performing time delay estimation of signals propagating through an environment

(Abstract, lines 1-4), comprising:

    - one or more sensors (16's) configured to receive a plurality of signals (Fig. 1);

    - a time delay estimator (28) operative to measure time delays between multiple

pairs of the plurality of signals (Fig. 1), thereby generating time delay estimation data

(60) from the measured time delays (Fig. 1),

- wherein at least some of the time delays between the multiple pairs of signals

are measured at different points in time (since sensors 16's are spaced apart differently

from target 38, Fig. 6; they measure signals at different points in time).

Regarding claims 2 and 28, Brandstein et al. discloses in the event a degree of noise

accompanies the multiple pairs of signals (column 12, line 31), at least some of the

noise is non-correlated (noise in signal, column 13, lines 44-47, is inherently

chaotic/random).

Regarding claims 3 and 29, Brandstein et al. discloses a data analyzer (column 12,

lines 53-54) operative to analyze the time delay estimation data, to generate a statistical

distribution (column 12, line 54) of the time delay estimates from the time delay

estimation data (column 12, lines 42-50), and to calculate at least one of the mean, the

median, and the mode of the time delay estimation distribution (column 12, lines 52-57).

Regarding claims 4 and 30, Brandstein et al. discloses the one or more sensors (array

12 of sensors 16's) are configured to receive a plurality of successive signals including

multiple pairs of successive signals (Fig. 1).

Regarding claims 5 and 31, Brandstein et al. discloses a passive time delay estimation

system (14 is deemed to receive successive signals).

Regarding claims 6 and 32, Brandstein et al. discloses the plurality of signals propagate through a predetermined transmission medium within the environment, the predetermined transmission medium being one of a fluid (microphones, Abstract, line 12, receive signal through air).

Regarding claims 7 and 33, Brandstein et al. discloses the time delay estimator includes a signal processor (source locator 116) operative to perform one or more preprocessing techniques on one or more of the plurality of signals to facilitate a determination of the temporal location of the one or more signals (column 17, lines 12-18).

Regarding claims 8 and 34, Brandstein et al. discloses the temporal location of the one or more signals corresponds to a prominent feature of the one or more signals, the prominent feature being one of a signal peak (column 2, lines 56-65), a signal valley, a signal energy, and a signal zero crossing.

Regarding claims 9 and 35, Brandstein et al. discloses the preprocessing techniques include at least one of a technique including match filtering at least one of the plurality of signals (column 2, lines 54-58).

Regarding claims 12 and 38, Brandstein et al. discloses one of acoustic signals (audio signals received by microphones, Abstract, line 12).

Regarding claims 13 and 39, Brandstein et al. discloses a beamformer (10) configured

to receive representations of the plurality of signals (Fig. 1), and to provide beams (66)

corresponding to the plurality of signals to the time delay estimator (column 8, lines 8-9).

Allowable Subject Matter

Claims 10, 11, 23, 24, 26, 36, 37, 49, 50, and 52 are objected to as being

dependent upon a rejected base claim, but would be allowable if rewritten in

independent form including all of the limitations of the base claim and any intervening

claims.

Reasons For Allowance

The **combination** as claimed wherein the statistical distribution of the time delay

estimates comprises a plurality of bins, the plurality of bins including a central bin, and

wherein at least one first time delay estimate is associated with the central bin and multiple

second time delay estimates are distributed among remaining ones of the bins (claim 10, 23,

36, 49) or including a beamformer configured to receive representations of the reflected

signals, and to provide beams corresponding to the reflected signals to the time delay

estimator (claims 26, 52) is not disclosed, suggested, or made obvious by the prior art of
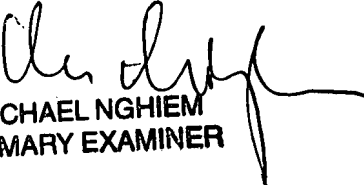
record.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MICHAEL NGHIEM
PRIMARY EXAMINER

Michael Nghiem

September 26, 2007